Data Structure Recitation

Make & Bash & (Subtyping)

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Homework 1

Questions?

javac vs. java

- Java compiler outputs Java class files containing platform-neutral Java bytecode [1]
- JVM executes Java bytecode.

[1] https://en.wikipedia.org/wiki/Java_compiler

Arguments

```
1  # main programs to run
2  main1 = ATM
3  main2 = HiClass
4
5  # name of the package
6  package = hw1/
7
8  # default command line arguments
9  args1 = 1111 16 2
10 args2 = 0 Hello there
```

Make targets

```
1  default: jc
2
3  jc javac c compile:
4          test -d bin || mkdir bin
5          javac -d bin src/*.java
6
7  j java r run:
8          java -classpath
9                  . src/${package}${main1} ${args1}
10
11 j2 java2 r2 run2:
12         java -classpath
13                 . src/${package}${main2} ${args2}
14
15 cr: compile run
```

DEMO

DEMO on Bash on Ubuntu.

Java Subtyping and Dynamic Dispatch

```
1 class vehicle{
2         void move(int x, int y) { ... }
3 }
4
5 class car extends vehicle{
6         void move(int x, int y) { ... }
7 }
```

Java Subtyping and Dynamic Dispatch

```
1  vehicle v=new vehicle();
2  v.move(100,200);
3  car c = new car();
4  c.move(50,70);
5
6  void f(vehicle q){
7          q.move(10,20);
8  }
```

Subtype means q could be a vehicle or car.
Dynamic dispatch means that which move method is called is determined by the dynamic type of q.

Thank you!

Questions?